

## Kansas State University

### Project Name ...

*Healthy Youth Places (Youth Environments Promoting Nutrition and Physical Activity)*

### Principal Investigator ...

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### Background / Significance of Problem ...

To reduce the risk for chronic disease, adolescents should eat at least five servings of fruit and vegetables and be physically active daily. Currently, however, youth are not meeting policy standards for these two health behaviors. During adolescence there is evidence that fruit and vegetable consumption and physical activity decline and that youths' behavioral decisions impact behavior and health through out life. Thus, adolescence may be a critical developmental period to deliver intervention strategies. Results from intervention studies targeting youth health behavior change suggest that schools are a promising setting where interventions can reach a large percentage of youth and be sustained. But, the success of school-based interventions to promote fruit and vegetable consumption and physical activity has been limited. Explanation for these small effects includes a lack of theoretical rationale for the tested intervention and a lack of sufficient implementation by school personnel of the intervention strategy. There is a need for an intervention that targets both diet and physical activity change in middle school students; draws on theory to develop a strategy to achieve health behavior change in students; and draws on theory to develop a strategy to improve the process of sustained intervention implementation in school settings.

### Research Question ...

The Healthy Youth Places Project tested if an intervention strategy that implements school environmental change with adult leader and youth participation will influence and maintain adolescent fruit and vegetable consumption and physical activity. The project developed a place-based dissemination model of multiple levels (project, school, and place) that were hypothesized to build the skills and efficacy of leaders (school staff and youth) to implement environmental changes in the school lunch place and after school place. A second aim of the project was to determine the individual and setting level processes affecting sustained physical activity and fruit and vegetable consumption.

### Findings To-Date ...

- [•] Using an experimental design, middle schools were stratified on setting level variables (school size, concentration of poverty, ethnic diversity) into three groups (large/moderate to high resource; small/moderate to high resource; large, low resource, diverse) and random-

ized within strata to an intervention ( $N=8$ ) or comparison ( $N=8$ ) condition. The health behavior of adolescents was assessed at the middle school during the spring of the 6th grade (2000/baseline), 7th grade (2001/post-intervention), and 8th grade (2002/post-intervention 2002). During 2003, the students moved from middle school to their 9th grade year in high school and were assessed (2003/follow-up).

- At baseline, seventy-four percent of 6th grade youth (compared to 20th day enrollment reports) had active parental consent and participated in the data collection. The project was also successful in tracking 76% of the intervention and 68% of the comparison cohort across the first three years of the study. At baseline, a mixed model ANOVA revealed no differences between intervention and comparison schools on the primary outcome measures: Previous Day Physical Activity Recall, and Child and Adolescent Food Frequency Questionnaire. The Healthy Youth Places Intervention schools significantly increased 16 minutes in vigorous physical activity (VPA) over the three year study. There was a significant mixed model VPA intervention effect (Random\*Year,  $F=3.59$ ,  $p=.028$ ). There was a six-minute difference in VPA performed each day post intervention between experimental and comparison schools. No intervention effects were found for fruit and vegetable consumption (F&V). F&V consumption decreased across the study (3.67, 3.43, and 3.09 servings for 6th, 7th, 8th grades).
- The intervention significantly increased the targeted mediator of self-efficacy for school physical activity environmental change over the three years of the study. (Mixed Model random\*year,  $F=12.02$ ,  $p=.0001$ ). Control schools significantly decreased and intervention schools significantly increased in self-efficacy for school physical activity environmental change.

### Implications ...

*[ for multibehavioral and multi-theoretical approaches to behavior change ]*

- The intervention process demonstrated that engaging youth and adult leaders within middle schools is an effective method for reaching a broad and representative sample of youth and increasing physical activity behavior. The intervention successfully enhanced the students' perceptions of their efficacy to change the school environment to promote healthy physical activity. Our findings provide evidence that intervention framework that involves youth and adults leaders in a participatory process to build healthy environments can have a significant impact on both the psychosocial development and physical activity of middle school youth over a three-year period.
- We are currently conducting analyses to identify the personal and setting level processes that may mediate the effectiveness of the intervention and may determine sustained behavior change. It may be that increasing self-efficacy for finding and creating supportive environments may be a particularly effective strategy for promoting the maintenance of regular PA because it may require less self-regulatory effort over time to perform a behavior in an environment that supports the behavior than it does to cope with barriers in an unsupportive environments.

### Future Research Directions ...

Although the intervention was successful in building the environmental change efficacy of youth and their physical activity, the intervention did not influence fruit and vegetable consumption. Because the intervention site coordinators and youth leaders were facing a constant battle of competing demands by attempting to promote two behaviors in two places (school lunch and after-school programs), future studies implementing the Healthy Youth Places process may have greater effects if there is a focus on developing the social and physical of one healthy place at a time (either after-school programs or school lunch).